

Chapter 1

“Just-in-time” Inventories and Labor: A Study of Two Industries, 1990-98

Although the automobile and help supply industries are quite different, trends in both have been affected by the just-in-time supply philosophy that has become commonplace in the decade of the 90s. To set the stage, we review the period of study, 1990 to 1998, from an economic perspective and then explain why these industries were selected. The analysis of the automobile industry follows, with the review of the help supply industry completing the chapter. This chapter draws heavily on economic data produced by the Department of Labor’s Bureau of Labor Statistics (BLS).

Economic background

The period 1990 to 1998 began with a downturn in economic growth, marked by a recession from July 1990 to March 1991. The subsequent recovery started slowly but picked up speed in 1992. This expansion was still healthy at the end of 1998 and, at that point, was the longest in the postwar period. While notable for its length, this expansion is not necessarily remarkable for its pace of economic growth. During the period of study, gross domestic product (GDP) grew at an annual average rate of 2.6 percent; and labor productivity for business (business represents about 80 percent of GDP) grew at an annual average rate of 1.4 percent. Both rates of growth are below the 1948 to 1998 average: GDP grew at an annual rate of 3.3 percent, and labor productivity grew at a 2.3 percent rate during this period. Employment during this period increased at an average annual rate of 1.3 percent, compared with 1.9 percent for the period 1981 to 1990. Despite the relatively slow growth in GDP, productivity, and employment, the unemployment rate fell below 5 percent in July 1997 and remained there throughout 1998. The previous period that the monthly unemployment rate remained below 5 percent for 6 months or more was in 1973. Simultaneously, the rate of inflation—as measured by the change in the Consumer Price Index for All Urban Consumers (CPI-U)—averaged less than 3 percent per year for the period 1990 to 1998. Similarly, the change in the Producer Price Index for Finished Goods (PPI) decreased precipitously during this period. The PPI increased at an average annual rate of 1.2 percent for the period 1990 to 1998.

Given this economic environment, we elected to study two industries. Along with the first industry, the motor vehicles and passenger car industry (SIC 3711), we examine its most important supplier industries: motor vehicles parts and accessories (SIC 3714) and automotive stampings (SIC 3465). (For convenience, we refer to the group of related industries as the automobile in-

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dustry.) The second industry chosen for study is the help supply industry (SIC 7363). The automobile and help supply industries were selected for two reasons. First, many changes in both industries over the past decade are a reflection of the flexible, just-in-time mode of production that many U.S. industries have adopted to reduce costs in a period of heightened worldwide competition. Changes related to this style of production are well documented for the motor vehicle industry. In the help supply industry, the exceptional growth can be traced to the increasing use of just-in-time labor by businesses of all types. In this example, temporary workers provided by help supply agencies met the need for more flexibility in the size of a firm's staff; they are the labor equivalent of just-in-time production factors in the motor vehicle manufacturing industry.

The second reason for selecting these two industries is that they contrast with each other. The automobile industry is an older, established manufacturing industry; the help supply industry is a newer service industry. The automobile industry has nearly the same level of employment in 1998 as it did in 1979, whereas employment in the help supply industry has grown dramatically since 1982 (the year data were first published for the industry). The following sections explore these elements, along with the changes that have taken place in each industry's workforce.

Manufacturing employment has been a declining percent of total nonfarm jobs throughout most of the post World War II period. However, this belies the continuing importance of manufacturing activity on the economy's health. In particular, a host of manufacturing and service-producing industries rely on economic activity in motor vehicle manufacturing and sales. These include input industries such as steel, fabricated metals, chemicals, automotive electronics, as well as automotive dealers and car financing. In addition, the cyclical behavior of motor vehicle output and employment is critical for policy planning and business cycle analysis.¹ For motor vehicle manufacturers, the decade of the 1980s, characterized by foreign competition and trade disputes, gave way to a diverse and competitive industry landscape where quality, lean production, and new supplier-assembler relationships are paramount.² In this chapter, we focus on the motor vehicles assembly industry (SIC 3711) and its key suppliers, the motor vehicles parts industry (SIC 3714) and the automotive stampings industry (SIC 3465).³ These supplier industries were selected, because of the large proportion of their output that goes to the assemblers. (The motor vehicles as-

sembly industry purchases about half of the output of the parts industry and three-quarters of the output of the stampers.)

Motor Vehicles Industry

Lean production and productivity growth

The problems for automobile manufacturers, brought to the fore by increased competition, have been how to reduce costs and maintain sales, while preserving vehicle reliability. The answer has been lean manufacturing techniques. Automakers began selling non-core businesses to focus their efforts on automotive manufacturing and to raise cash. They also began revising their internal structures and processes, in accordance with lean manufacturing principles. This enabled them to boost productivity and reduce costs. However, this process takes significant time and effort.⁶

The first step automobile manufacturers took in the 1990s to remedy their situation was to shift to new, improved methods of production under the heading *lean production*. Lean production is distinguished by its minimalist approach to factory management. Inventories are taken on a just-in-time basis, to reduce handling and to expose defective parts before they accumulate in the warehouse. Additionally, lean manufacturing requires a company to look at each detail of its organization and determine how *tasks* can be best organized, modified, eliminated, or combined for an efficient operation. Indirect labor is pared, and specialized labor is replaced with cross-trained production workers who rotate jobs. Employees also take on responsibility for quality control, repair, housekeeping, and preventive maintenance.⁷ Moreover, lean manufacturing dictates that employees be empowered to make suggestions for improvements beneficial to the company.

Quality of the product is an important consideration in lean production, because well-made products reduce rework and warranty costs. All members of a team are authorized to take necessary steps and actions to ensure that quality goals are met. With this type of system, employees act as the quality control staff, thereby removing duplication of effort.

Greater reliance on suppliers

To further reduce costs and improve efficiency, manufacturers turned to their suppliers. One of the early steps taken was to reduce costs in the manufacturers' own parts operations. Typically, manufacturers depended on their in-house parts

Long-term Trends, 1987-98

Productivity, output, and hours. The period 1987-98, the years for which BLS has complete measures for labor productivity, output, and total hours for all manufacturing industries, included the end of the expansion of the 1980s, the brief 1990-91 recession, and the current expansion.⁴ Labor productivity in the motor vehicles assembly industry grew at an average annual rate of 2.4 percent during the 1987-98 period. (See table 1-1.) Output increased 1.7 percent per year, whereas employee hours decreased 0.8 percent per year.⁵ Trends in labor productivity of the motor vehicles suppliers were similar to those of the assemblers. Output per hour rose at an average annual rate of 1.8 percent in the motor vehicles parts industry and 2.1 percent annually in the automotive stampings industry. However, output growth has been more robust in the supplier industries than in the assembly industry. Output of the automotive stampings industry rose at an average annual rate of 3.3 percent. This was nearly double the growth rate in the assembly industry. The motor vehicles parts industry increased production 5.1 percent per year—three times as fast as the assembly industry. The supplier industries also recorded higher rates of growth in employee hours than did the assembly industry. Employee hours increased 1.2 percent per year in the automotive stampings industry and 3.2 percent annually in the motor vehicle parts industry.

Labor productivity and unit labor costs are closely related variables. Whereas productivity measures the hourly output of workers, unit labor costs measure compensation per unit of output. An increase in compensation per hour tends to increase unit labor costs, but an increase in productivity tends to reduce unit labor costs. Therefore, through its impact on unit labor costs, productivity is an important element in the wage-price relationship, because it is an indicator of the extent to which compensation gains can occur without putting pressure on prices.

Unit labor costs. Unit labor costs in the motor vehicles assembly industry increased at an average annual rate of 1.3 percent during the 1987-98 period. (See chart 1-1.) In contrast, unit labor costs were flat in the motor vehicles parts industry and actually declined 0.8 percent per year in the automotive stampings industry.

divisions to supply components, and these divisions usually did not have to compete with outside suppliers. However, beginning in the late 1980s and early 1990s, motor vehicles assemblers began to require their divisions to compete with outside suppliers. This put great pressure on in-house suppliers to improve efficiency and lower costs. Similarly, outside suppliers also had to improve efficiency and reduce costs, in order to compete with the larger in-house suppliers for contracts.

Seeking additional cost reductions, motor vehicles assemblers demanded that suppliers assume greater responsibility for design, development, and supply management. The suppliers responded with new product development processes that focused on integrated supply-base management. Expansion of supplier responsibility in design and product development resulted in a greater commonality of components between platforms, reducing time needed to develop new products. Suppliers also reduced costs by standardizing design and tooling. Additionally, suppliers' work-

ers earn substantially less than what major motor vehicle manufacturers' employees earn, resulting in lower labor costs. The most successful suppliers managed groups of individual component suppliers and oversaw the integration of these components into a final assembly delivered to the motor vehicle manufacturer. An example of this shift in responsibility to suppliers is the extended enterprise system of the Chrysler Corporation.⁸

These supplier changes produced entire modules or systems ready to be bolted onto chassis on the assembly line, thereby reducing the amount of labor, complexity of tasks, and costs required for assembly.⁹ Whereas the modules themselves usually cost more than the sum of their parts, motor vehicle manufacturers come out ahead in the end, because of fewer injuries, fewer repairs, and lower labor costs.¹⁰

Materials to hours ratio. Evidence of the shift to greater reliance on suppliers is found by examining data on output per hour and materials per hour of the motor vehicles assembly industry. (See chart

1-2.)¹¹ From 1987 to 1996, output per hour in the motor vehicles assembly industry increased at an average annual rate of 1.8 percent. In comparison, the ratio of materials to hours of production in the motor vehicles assembly industry grew much faster, 3.9 percent per year. When this ratio is restricted to materials purchased from the motor vehicles parts industry, the ratio of materials to hours increased even more rapidly, rising 5.7 percent annually. Thus, the shift of responsibilities to suppliers resulted in an expansion in the use of purchased components or systems by the motor vehicles assembler.

Motor vehicle industry structure

During most of the 1990s, U.S. motor vehicles assembly firms included General Motors, Ford, and Chrysler (the Big Three), and nine foreign- or jointly-owned companies with American plants. The Big Three motor vehicles companies were first, second, and seventh in terms of 1997 worldwide vehicle production.¹² In late 1998, Chrysler Corporation and the German firm, Daimler-Benz AG, merged to form DaimlerChrysler AG. This new company is ranked number five behind General Motors Corporation, Ford Motor Company, Toyota Corporation, and Volkswagen AG, in terms of worldwide production.¹³

North America, Western Europe, and the Asia-Pacific region dominate the global motor vehicle market, with the United States as the leading producer and consumer of automobiles and trucks. In 1998, the U.S. produced 12 million passenger and commercial vehicles, which represented one fifth of the motor vehicles produced worldwide. The United States is also the largest consumer of vehicles. In 1996, about a third of the 206 million worldwide vehicle registrations were located in this country.¹⁴

A host of foreign companies have set up shop on U.S. soil, helping to support American employment in the motor vehicles industry. These foreign companies were attracted by several factors, including proximity to the largest automobile market, a skilled labor force, trade considerations, and favorable currency fluctuations. This has resulted in the U.S. market share of imports decreasing. (See table 1-2.) U.S. motor vehicle companies have become global companies, with major production sites in Canada, Mexico, Germany, England, Spain, and Brazil. Overseas production is devoted to both local markets and the U.S. market.

U.S. motor vehicles and parts market. The value of personal consumption expenditures on motor vehicles and parts was \$279 billion in the first quarter of 1999, whereas fixed investment in transportation equipment by producers represented an additional \$167 billion.¹⁵ Together, motor vehicle and related transportation equipment accounted for 5.8 percent of the GDP.

In 1998, sales of passenger cars and light trucks were 15.6 million units, with 52 percent of these cars and 48 percent trucks¹⁶. The light truck market includes pickup trucks, minivans and vans, and sport utility vehicles (SUVs). One U.S. market trend during the 1990s is the steady increase of the share of light truck sales, compared to cars. (See chart 1-3.) This trend continues, as U.S.-based factories respond to high demand for SUVs and other light trucks.

The after-tax profits of motor vehicles and equipment companies were \$4.5 billion on \$96 billion of sales in the fourth quarter of 1998.¹⁷ This profit level is about one-tenth of all manufacturing's profits over the same period. After-tax profits of motor vehicles and equipment companies as a percent of sales—at 4.7 percent—are slightly above the rate for all manufacturing, 4.5 percent.

In 1997, there were 947 plants or installations devoted to motor vehicles assembly in more than 20 States.¹⁸ About two-thirds of employment in these plants was located in Michigan (43 percent) and three other Midwest States: Ohio (13 percent), Missouri (5 percent), and Illinois (3 percent). Outside the Midwest, Kentucky and Tennessee also have emerged as important players, representing a combined 9 percent of the industry's employment. Transplants—foreign-owned motor vehicle assembly plants—have established a manufacturing presence in areas outside the Midwest, including Kentucky, Tennessee, North Carolina, Alabama, and California.¹⁹ Employment is somewhat less concentrated in motor vehicles parts than assembly. Still, three Midwest States employed 49 percent of the motor vehicles parts workers in 1997: Michigan (24 percent), Ohio (13 percent), and Indiana (12 percent).

Workforce profile

Employment and earnings. Nearly a million people, or 5 percent of total manufacturing employment, work in the motor vehicles and equipment industry (SIC 371). More than three-fourths of these employees are production workers. In

comparison, 69 percent of the employees are production workers in the manufacturing sector as a whole. The motor vehicles and equipment industry is highly organized, with nearly 36 percent of employees currently members of a union. In comparison, 16 percent of workers belong to unions in the manufacturing sector overall.²⁰

Average weekly hours are higher for workers in motor vehicle manufacturing than for all workers in the manufacturing sector. Production workers in motor vehicles assembly worked longer weeks during the 1990s than in the 1980s, with the workweek increasing from 42 to 44 hours. (See chart 1-4.) By 1997, these production workers were on the job more than 45 hours per week. Average weekly overtime grew from 4 hours in the 1980s to over 7 hours in 1994. (See chart 1-5.) A lengthening workweek was also the trend in the motor vehicles supplier industries. Among motor vehicles parts manufacturers and automotive stampers, the workweek grew from 43 hours in the 1980s to 44 hours in the 1990s. Workers in the supplier industries also had more overtime hours in the 1990s than in the 1980s, with average weekly overtime rising from 4.5 to almost 6 hours in the motor vehicles parts industry. Stampers gained nearly an hour of weekly overtime work in the 1990s, compared to the 1980s.

Earnings of production workers in the motor vehicle industry are also significantly higher than the average earnings of all production workers in the manufacturing sector. Earnings in manufacturing, which includes overtime pay, grew at an annual rate of 4.8 percent from 1960 to 1998, compared to a 5.0 percent rate in transportation equipment. Excluding overtime, the annual growth rate in earnings for transportation equipment workers was a tenth of a percent lower than earnings including overtime. This indicates that the upward trend in overtime hours played a role in the increased earnings in this industry. (See table 1-3.) Within the motor vehicle industry, the highest earnings are in motor vehicles assembly. Not only are motor vehicles assembly workers earning more than manufacturing workers overall, their earnings are also rising faster than average manufacturing earnings. The annual growth rate in average hourly earnings from 1960 to 1998 was 5.4 percent for auto assembly workers, compared to 4.8 percent for overall manufacturing.²¹

Wage rates of production workers in the motor vehicles *supplier* industries also are higher than average rates in all manufacturing industries taken together, but lower than rates paid to motor vehicles assemblers. In 1960, production workers

in the motor vehicles parts industry earned one fifth more than people employed in all manufacturing industries, but their wage rate was 5 percent lower than motor vehicles assemblers. In 1998, parts workers continued to earn a fifth more than other manufacturing workers but earned a third less than motor vehicles assemblers. Automotive stampers also earn more than the manufacturing sector, but less than motor vehicles assemblers. Production workers in the automotive stampings industry earn a third more than the manufacturing average but a fourth less than assemblers.

Occupational and demographic profile. The age composition and occupational mix of the workforce of the motor vehicles and equipment industry changed little during the 1990s. The largest occupational group in motor vehicle and equipment (SIC 371) is production, operating, and material handling occupations, comprising 73 percent of employment in 1996.²² A third of production workers in motor vehicle production are assemblers, including precision machine and electronic assemblers, structural metal fitters, and welders and cutters. Machine setters and operators represent another third of these production workers.

Managerial, administrative, and clerical support positions represent about 10 percent of the motor vehicle workforce, whereas 15 percent are employed in the professional and technical occupations (engineering, statistics, computer and physical sciences, and law). These shares are comparable with those for manufacturing overall.

Whereas women held just under half of the total nonfarm jobs and a third of manufacturing jobs in 1998, they held just below a fourth of the jobs in motor vehicles and equipment. However, this share is up from 14 percent in 1978, a peak year in employment for this industry.²³ The age distribution in the industry followed manufacturing and the overall economy, with 55 percent of workers between the ages of 25 and 44 and 35 percent between 45 and 64 years old. Just over 82 percent of motor vehicles and equipment workers were white workers in 1998, compared to 84 percent in the manufacturing sector.²⁴

Benefits. Most workers in the motor vehicles and equipment industry (94 percent in 1993) are offered some kind of health insurance coverage by their employers. The comparable coverage rate for total manufacturing was 90 percent.²⁵ Nearly three-quarters of workers in the motor vehicles

and equipment industry are covered by a retirement plan, whereas less than half of total private workers have such benefits. In particular, employers of almost 60 percent of workers in this industry offered a 401(k) plan, and more than 60 percent of these workers contributed to their plans. Over 70 percent of motor vehicles and equipment workers have paid sick leave or sickness insurance, compared to just over half of total private workers. Three-fifths of these industry workers have a short-term disability coverage of 5 to 6 months.

Employment trends

Assemblers. The most recent contraction of employment in the motor vehicles assembly industry began in the mid-1980s and extended into the 1990-91 recession. (See chart 1-6.) The number of employees decreased every year from 1985 to 1991. Bottoming out at 313,200 employees, the 1991 level of employment was only two-thirds of the peak employment level reached in 1978. (The last year that employment dipped below 313,000 was during the 1960-61 recession.)

A weak recovery began in 1992, as assemblers added 1,900 employees to their workforce. Employment grew modestly in 1993, reaching 319,700 workers. Larger additions were made to the workforce in 1994 and 1995. Assemblers increased employment by 6.8 percent in 1994. Another 4.7 percent were added to the roster in 1995, raising industry employment to 357,400 workers. The employment situation in the last half of the 1990s has been mixed. Motor vehicles assemblers cut 11,500 jobs in 1996, but added 1,900 in 1997. In 1998 employment dropped back to 341,800 workers, only 73 percent of the 1978 peak employment.

Suppliers. The employment story of the motor vehicles parts industry has been different from that of the motor vehicles assembly industry. The number of employees in the parts industry rose every year since the 1981-82 recession, except for 1986 and 1990. The parts industry has hired 223,500 workers, an average increase of 3.3 percent per year, from 1982 to 1998. The fastest growth in employment occurred in the 1990s. From 1990 to 1998, employment in the motor vehicles parts industry grew at an average annual rate of 4.0 percent. Employment reached a new high in 1998 of 546,800 workers. The number of people working in the parts industry surpassed that of the assembly industry for the first time in 1981 and has remained higher than assembly employment since 1987.

Employment growth in the automotive stampings industry has been weaker than in the motor vehicles parts industry but stronger than in the motor vehicles assembly industry. Employment peaked at 118,300 workers in 1978, before falling to 94,400 in the 1990-91 recession. The peak level was nearly attained again in 1996, when the number of workers climbed to 117,000. Since 1996, 2,900 jobs have been lost, bringing employment down to 114,100 in 1998.

Increased competition and lower prices

Increased competition. Throughout the late 1980s and 1990s, the domestic motor vehicles industry has been in a state of increasing competition, due to the significant amount of overcapacity in the industry. Executives from the Big Three manufacturers estimate overcapacity equivalent to approximately 80 factories.²⁶

Increased competition, due to overcapacity, has caused motor vehicles assemblers to change pricing strategies. Typically, manufacturers increase prices at model year introduction and intermittently throughout the year. This trend has changed. Price increases have been small, and there have actually been some price declines recently, particularly in the passenger car segment. (See chart 1-7.) The Big Three manufacturers have continued to lose market share to transplants and import brands. For example, in 1993, the Big Three held 66 percent of the market; but by 1997, this percentage had fallen to 60 percent.²⁷

Light truck manufacturers have also started to feel increased competitive pressure, as more models enter the market. In 1993, there were 429 light truck models offered in the domestic market. By 1998, this number had increased to 573, a 30 percent increase. The largest portion of this increase came from the Big Three, who increased the number of models offered from 383 in 1996 to 456 in 1998. (Imports and transplant manufacturers added seven models during this period.)²⁸ Even with this large gain in the number of models, the Big Three are beginning to lose market share. From 1993 to 1996, their market share hovered around 86 percent. In 1997, this percentage fell to 84.8 percent.²⁹

Incentives have gained importance in the U.S. market, as manufacturers try to lure buyers into showrooms to buy their products. These incentives include low rate financing, as well as cash incentives that lower the overall transaction price to consumers. In addition, incentives can enable a manufacturer's product to stand out from the

competition and may sway customers. Dealers, too, are offered incentives, which they can choose to pass on to consumers in terms of lower negotiated prices, without sacrificing profit margins. Even in a period of low interest rates, the contemporary market requires incentives.

A relatively flat market has compounded the competition problem. Light vehicle sales have remained around 15 million units per year for the past several years, with increases in truck sales offsetting declines in passenger car sales. (See table 1-2.) The declining sales of passenger cars are due to several factors.

Consumers are keeping their vehicles longer than they did. According to a report from the International Trade Administration, the ownership period of passenger cars increased from 4.6 years in 1985 to 5.7 years in 1995. A partial explanation of this trend is that as new car prices increased rapidly—outstripping the growth in disposable personal income—many buyers were forced to hold on to their vehicles. (See table 1-4.) In addition, quality improvements in vehicles have enabled consumers to extend the lives of their vehicles.³⁰ The median age of passenger cars on the road rose from 6.5 years in 1990 to 8.3 years in 1998.³¹ Furthermore, in 1997, the median age of passenger cars was 8.1 years.³²

Price changes. As stated above, increased competition has been a major factor affecting motor vehicle prices. (See chart 1-8.) Motor vehicle prices, as measured by the Producer Price Index, rose sharply in the 1980s and early 1990s before leveling off in the mid-1990s. Vehicle prices increased roughly 14 percent over the period 1990 to 1994, averaging 3.6 percent per year. Increases in 1995 and 1996 slowed to about 1 percent per year. 1997 and 1998 saw a different trend, declining prices, as the PPI fell approximately 1 percent per year.

Lower overall inflation over the past several years, as measured by the Consumer Price Index (CPI) and the PPI, has also benefited automakers. For the period 1990-98, the CPI rose, on average, 3 percent per year. The PPI, on average, rose 1.6 percent per year during the same period. Lower inflation has enabled manufacturers to hold down prices without suffering significant cuts in profit margins. Suppliers have been able to provide components and parts to the manufacturers at constant or lower prices without much price or profit pressure. The prices from motor vehicle suppliers demonstrate this fact.

Prices of motor vehicles suppliers also rose in the 1980s and flattened in the 1990s. Prices

of motor vehicles parts rose at an average annual rate of 1.2 percent from 1983 to 1990. Since 1990, the growth rate of prices has been reduced by more than half to 0.5 percent per year. The automotive stampings industry registered a 1.1 percent annual growth rate in prices in the 1980s; but since 1990, prices have risen a negligible 0.1 percent per year. (See chart 1-8.)

Transition and recession, 1987-91

Productivity, output, and hours. A sharp increase and subsequent leveling off of productivity growth in the motor vehicles assembly industry marked the final years of the expansion of the 1980s. Labor productivity grew a robust 9.9 percent in 1988. Assemblers increased output 5.3 percent, despite a cutback in employee hours of 4.2 percent. Productivity, output, and hours changed little in 1989. However, output per hour fell 1.3 percent in 1990, as output and hours plunged 9.3 percent and 8 percent, respectively. Labor productivity of assemblers declined an additional 5.3 percent in the 1991 recession year, as output dropped almost twice as fast as hours. The final years of the expansion of the 1980s were also volatile for the parts industry. Output per hour rose 4.8 percent in 1988. Output grew a robust 10.8 percent, whereas employee hours increased much less, 5.8 percent. Labor productivity declined 5.9 percent in 1989. Although production fell 4.6 percent, hours rose 1.4 percent. The automotive stampings industry registered productivity declines in both 1988 and 1989. In 1988, employee hours grew almost three times as fast as output, resulting in a drop in productivity of 3.7 percent. Output per hour fell another 3.5 percent in 1989. Employee hours rose 0.7 percent, and production decreased 2.8 percent. Suppliers felt the 1990-91 recession less than motor vehicles assemblers. The parts industry recorded productivity growth of 2.1 percent in 1990 and a drop in productivity of 2.5 percent in 1991. Output declined in both 1990 and 1991, 4.1 percent and 3.3 percent, respectively. The decline in output per hour was somewhat greater in the stampings industry, 3.8 percent in 1990, and 3.1 percent in 1991. Sizable drops in output of automotive stampers were accompanied by smaller reductions in employee hours.

Unit labor costs. The motor vehicles and equipment industry experienced highly volatile unit labor costs during the 1987-91 period. After declining 6.4 percent in 1988, unit labor costs of

motor vehicle assemblers increased 8.3 percent in 1989 and 6.6 percent in 1990. Unit labor costs skyrocketed 12.9 percent in the 1990-91 recession. Among the supplier industries, unit labor costs increased in the early years of the 1987-91 period and then fell in later years. From 1987 to 1990, unit labor costs grew 3.7 percent per year in the motor vehicles parts industry and 5.2 percent annually in the automotive stampings industry. Unit labor costs continued to rise during the 1990-91 recession, 4 percent in the parts industry, and 7.8 percent in the stampings industry.

Current expansion, 1991 to present

Productivity, output, and hours. The adoption of lean production practices, as well as plant characteristics, such as large-scale production, operating near capacity (at select plants), and automation contributed to the productivity gains registered by the motor vehicles and equipment industry in the post-recession 1990s.³³ Recovering from the 1990-91 recession, motor vehicles assemblers boosted labor productivity 3.4 percent annually in the 1991-98 period. The growth in output per hour reflected a 4.9-percent annual gain in output and a 1.4-percent annual increase in employee hours. The supplier industries also made strong recoveries during the current expansion. From 1991 to 1998, output per hour grew at an average annual rate of 3.1 percent in the parts industry. Parts production increased 8.4 percent per year, whereas employee hours grew 5.2 percent annually. Similar growth rates were recorded by the automotive stampings industry. Labor productivity grew 5.4 percent annually, as output rose 8.5 percent per year; and hours grew 3 percent per year.

Unit labor costs. The motor vehicles and equipment industry reined in labor costs in the current expansion. From 1991 to 1998, unit labor costs of assemblers declined 0.9 percent per year. During the same period, parts manufacturers cut unit labor costs, on average, by 2.0 percent annually. The automotive stampings industry had even greater success in controlling costs, reducing them 4.4 percent per year.

Other cost reduction efforts

Beyond the implementation of lean production methods and the greater reliance on suppliers, motor vehicles assemblers have been gaining greater efficiencies on the production line by reducing the number of model combinations being

built. This is accomplished through a reduction in the number of options and packages offered to consumers, as well as a reduction in the number of trim levels of any given vehicle. Reducing the complexity of combinations on the assembly line reduces the cost of production through several means. Line workers become more familiar with the process and their tasks, so there are fewer errors and less rework required. Less inventory needs to be placed at the assembly station and fewer steps are required in the process, because a smaller product mix is offered. This also reduces the amount of space on the line, which enables manufacturers to better utilize factory floor space.

Manufacturers are using other methods of cost reduction, as well. In an effort to speed up the vehicle design process, specialized computer-aided design software in the research and development (R&D) phase is being used. Many of these systems enable manufacturers to see how a design will work and correct problems before actually committing to tooling to build a prototype. Designing a vehicle on a computer also allows manufacturers to reduce the amount of time needed for R&D. This enables manufacturers to get a design to market before consumer tastes change. This process requires fewer employees and allows all divisions of the company to have input into the design before resources are committed. An extension of this is that suppliers also have access to these systems and are able to find less expensive ways to design parts and modules for a particular vehicle—or group of vehicles—which may use common parts.

Manufacturers also are attempting to standardize components, including powertrains, interiors, chassis, and platforms, across models. By designing components that are used on different models (and even in different markets), manufacturers are able to gain production efficiencies and lower costs. R&D costs and the amount of inventory and space needed can be reduced, and production workers are less prone to errors and rework, when a common design is employed.

Conclusion

The United States is both the leading producer and the leading consumer of cars and trucks. Not only do many manufacturing industries depend on the production and sales of motor vehicles (steel, fabricated metals, chemicals, and automotive electronics); but several service industries (automotive dealers, auto repair shops, and the auto financing industry) depend on the vehicle industry. Therefore, policy planners and business

cycle analysts closely follow the cyclical behavior of the motor vehicle industry.

Nearly one million people work in the motor vehicles and equipment industry. Their workweek is longer and their hourly wage rate is higher than the averages in the manufacturing sector overall. Insurance and retirement plans cover most of these workers.

From the end of the 1980s and continuing through 1998, motor vehicle manufacturers faced stiff competition, at the same time that demand for their products flattened. The primary reason for the intense competition was that motor vehicle assembly plants were operating well below capacity. Improvements in the quality of vehicles, together with high prices, caused consumers to postpone the purchase of new cars, thus lengthening the replacement cycle. Simultaneously, consumer preferences shifted from cars to light trucks. Minivan sales surged early in the decade, and sports utility vehicle sales grew at the end of the decade. The share of in-

dustry receipts from passenger car sales fell, whereas the share of industry receipts from light truck sales rose.

To boost sales, motor vehicle assemblers attempted to reduce costs, maintain quality, and, ultimately, to price vehicles in a way that would attract customers. In their effort to lower costs, the motor vehicle industry adopted lean production techniques. Lean production is a minimalist approach to factory management where cross-trained workers are responsible for quality control, repair, housekeeping, and preventive maintenance, in addition to producing the cars. Further cost reductions are achieved by shifting many design, development, and supply management tasks from assemblers to suppliers. The efforts of the motor vehicles and equipment manufacturers paid off with gains in output above gains in hours, thus increasing productivity. The expansions in output, hours, and productivity recorded by the suppliers was larger than the gains recorded by the assemblers.

Temporary Help in Auto Manufacturing

In this chapter, we have analyzed in detail two very different industries. A natural question that follows is, do these industries interact? Whereas input-output tables of the U.S. economy measure the transactions between the two industries (\$274 million worth of services purchased by auto manufacturers from personnel supply in 1992), they do not tell us much about this relationship. Temporary help firms are unable to state how much of their output goes into manufacturing, let alone one industry within that sector.⁷⁹ In 1995, a trade journal attempted to gauge the number of temps working in auto manufacturing in Detroit. While two of the Big Three declined to answer, Chrysler Corporation said it had 2,000 *contract* workers.⁸⁰ However, a contract worker is not necessarily a temp.

In spite of sparse data on the use of temp help agencies by the auto industry, some insight can be gleaned from efforts related to welfare reform. A number of States began experimenting with new aid programs for welfare recipients before the Federal Government enacted the Personal Responsibility and Work Opportunity Reconciliation Act in 1996, commonly known as welfare reform.⁸¹ The two industries analyzed in this chapter played a part in both the early State efforts and the recent Federal welfare reform program.

The primary functions of help supply services establishments are recruiting, screening, training, and placing individuals in jobs. These skills work well with the objective of welfare reform—to place people who are receiving assistance into the job market where they can earn a living.⁸² “Welfare to work makes good business sense, because there are many jobs that are going unfilled and many candidates who want to work,” says the CEO of Manpower, Inc.⁸³

Beginning in 1995, Kelly Services, one of the largest help supply companies, began working to place welfare recipients into the labor force in Michigan, in an alliance with government and a community college.⁸⁴ The Oakland Community College’s Advanced Technology Program takes welfare recipients with dependent children and trains them in computer skills, while providing certain benefits and childcare. The 15-week program ends, when the recipient is placed in a high-tech position as a Kelly Services employee at General Motors’ Centerpoint facility in Pontiac, Michigan. By late 1998, this program had graduated 87 individuals; overall, Kelly employed more than 300 people at the Centerpoint facility.⁸⁵

Chart 1-1. Unit labor costs, selected industries, 1987-98

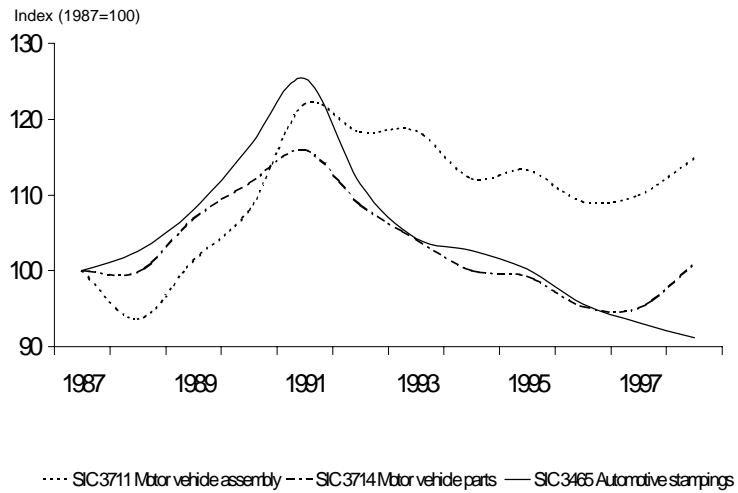


Chart 1-2. Output per hour and material purchases, SIC 3711, 1987-96

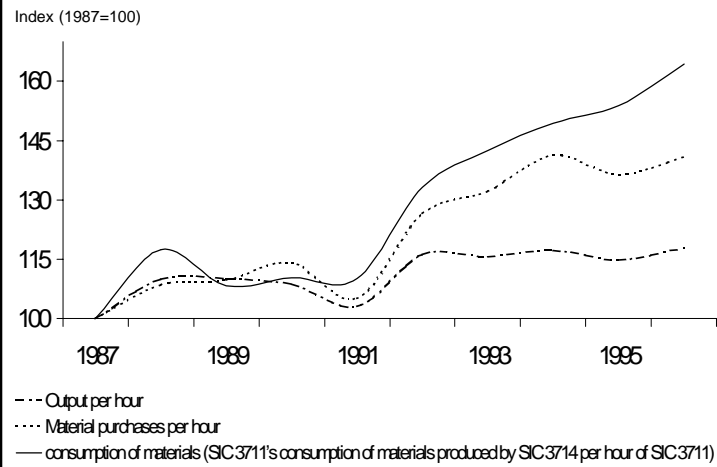


Chart 1-3. Passenger car and light truck sales shares in the U.S. market, 1993-98

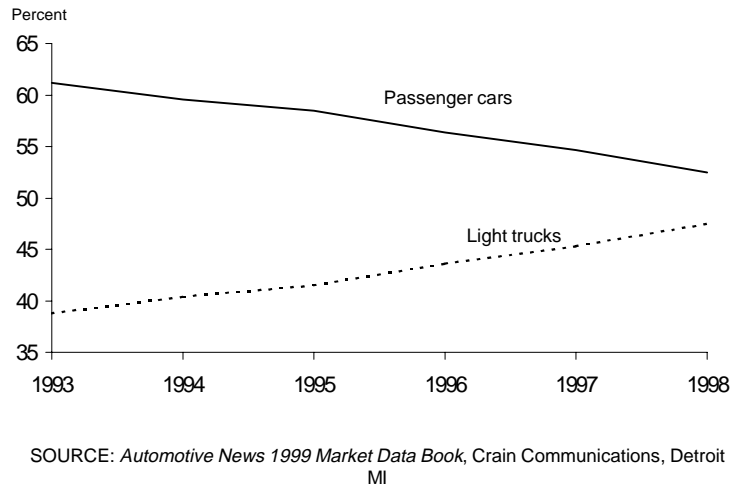


Chart 1-4. Average weekly hours, selected industries and all manufacturing, 1979-98

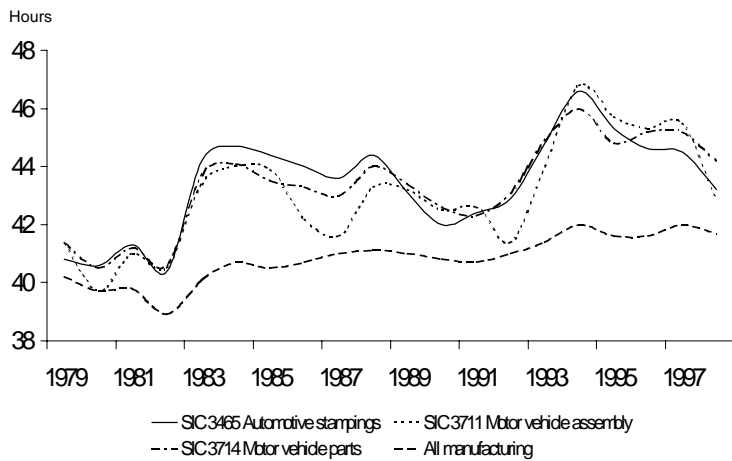


Chart 1-5. Average weekly overtime hours for production workers, selected industries, 1979-98

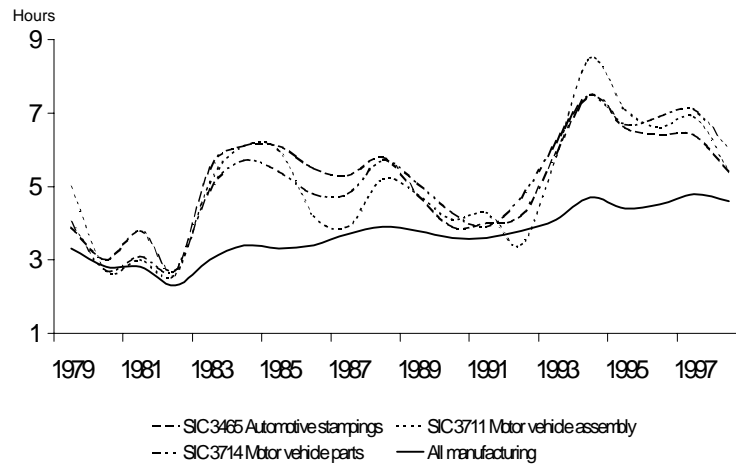


Chart 1-6. Employment in motor vehicle assembly and supplier industries, 1979-98, annual averages

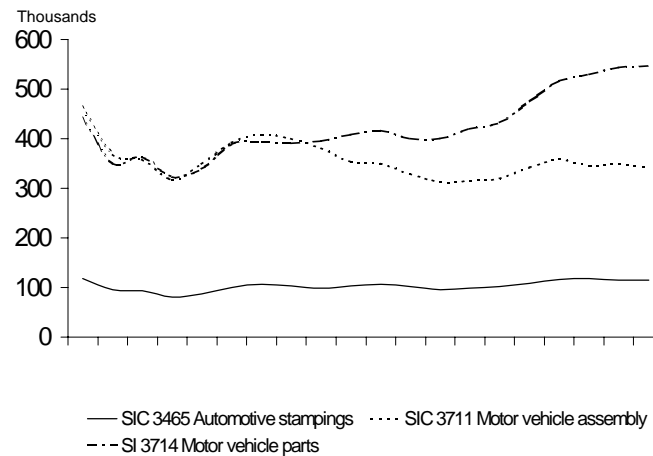


Chart 1-7. Producer Price Indexes for finished goods, passenger cars and light trucks, 1979-98

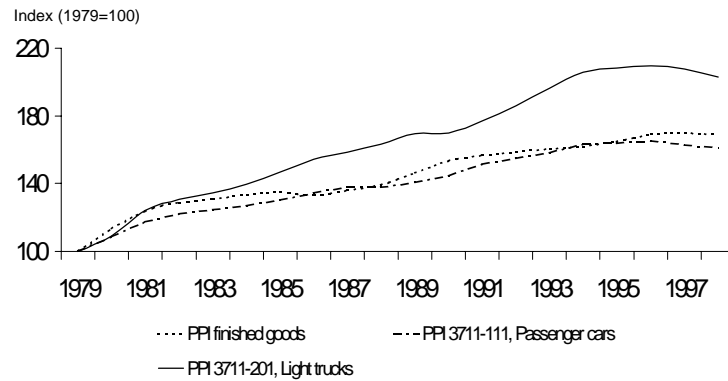
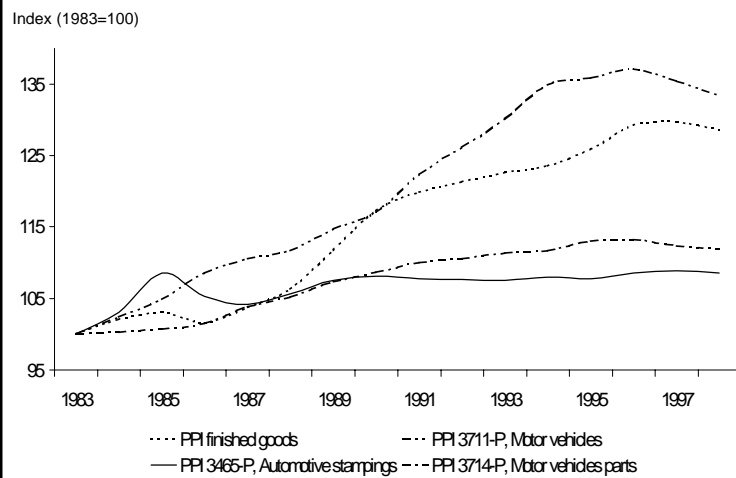


Chart 1-8. Producer Price Indexes for selected industries, 1983-98



Help Supply Services

Employers that have flexibility in adjusting labor requirements to meet product and service demands have a competitive edge over those with less flexible human resource policies. The contingent work force that accommodates fluctuations in labor requirements has become an increasing segment of the labor market. Whereas the standard work arrangement remains the full-time, permanent job, variants from that standard to provide just-in-time labor have become commonplace. The definition of this kind of *alternative* or *contingent* labor varies widely.

BLS studies of contingent work have focused primarily on whether a job includes the expectation of long-term employment.³⁴ The definition of contingent workers oftentimes includes not only persons hired for temporary positions, but also the self-employed, part-time workers, those involved in home-based work, and independent contractors, among others.³⁵

One group of contingent workers is distinguished from the others, in that they have agreed to short-term employment contracts arranged through help supply services companies. This group of temporary employees is the only part of the contingent workforce that is identified in the SIC structure. Thus, more data are available for help supply services employees than for other contingent workers. This category of just-in-time employment is the focus of the remainder of this chapter.

Help supply services (SIC 7363) is the largest component of the personnel supply services industry (SIC 736); temporary help agencies dominate help supply services.³⁶ The help supply industry primarily involves the contracting of labor for short periods of time. The only other significant component of personnel supply services is employment agencies (SIC 7361), which provides permanent placement and recruiting services. Employment agencies accounted for less than 12 percent of employment in the personnel supply industry group in 1998, with this primarily a count of the administrative staff of the agencies. However, the differences between help supply and employment agencies are becoming blurred, because many companies now offer both types of services.

Besides temporary help agencies, help supply services include employee leasing services. However, this is a very small component of the industry.³⁷ Hence, temporary help agencies dominate both the help supply services industry (SIC 7363) and its *parent*, the personnel supply indus-

try (SIC 736). This fact is important, because the Current Population Survey (CPS) provides demographic detail for the personnel supply industry but not separately for the help supply industry. For this reason, data used in this chapter refer to the personnel supply industry (SIC 736), unless otherwise noted.

Most temporary help workers have full-time jobs and work less than a year in an assignment. The majority do not work indefinitely as temporaries.³⁸ Even though temporary workers report to clients at a variety of sites, they receive their pay from the temporary help firm, their employer of record.

Increasingly, businesses are turning to personnel supply firms to supplement their work force. Historically, this industry has been associated with staffing for seasonal and fluctuating workloads. However, recent growth has been spurred by competitive strategies to increase flexibility and decrease cost within organizations, increasing growth in project-related assignments, and the use of temporary staffing arrangements as a screening device for hiring potential permanent employees.

Industry portrait—rapid growth

Help supply services employment grew from 0.6 percent of the total private economy in 1982 to 2.7 percent in 1998—a rate of growth surpassing even computer and data processing employment. (See chart 1-9.) Despite its small size, the industry accounts for a large portion of increased work activity over the past several years, and particularly in the years following economic recessions. Help supply service workers (more commonly known as temporaries or temps) are particularly sought by businesses, when increased economic activity is tentative. At these times, firms fear the hiring of permanent staff only to be forced to cut employment later, if the increased activity does not prove sustainable. (See chart 1-10.)

The volatility of the help supply services industry is due in part to its role as a buffer for changes in economic demand, with employers turning to help supply services when they're not certain that an economic recovery is reliably underway. The tendency for this industry to grow rapidly as the economy comes out of a recession is enhanced by a large pool of available labor, with the reverse also true as the economy enters the latter stages of an expansion. (See chart 1-11.) Reliance on the availability of a supplementary labor pool has resulted in significant volatility in the personnel supply industry and possibly less volatility in employment growth for the industries

Terms Defining Leasing and Temporary Employees

Employment in help supply services includes a small portion of employment attributed to employee leasing firms. Leasing arrangements provide a cost-effective human resources alternative for small firms. According to the National Association of Professional Employer Organizations (NAPEO), member leasing firms report an average of 14 employees per client work site.³⁹ Essentially, businesses contract with staffing companies that specialize in human resource and administration functions, leaving managers more time to devote to the activity of their businesses. Employee leasing is similar to the help supply component in that increased use of temporary help supply may also reflect companies' focus on core functions. Employee leasing is different from help supply, in that personnel are assigned to the staffing firm on a long-term, rather than on a short-term basis. Frequently, an employer transfers existing and future staff to the leasing agency's payroll but retains hiring and training functions.

The rapid growth of employee leasing in the late 1980s was related to changes in tax laws affecting the calculation of coverage tests for benefit plans. Amendments to the Employee Retirement Income Security Act of 1984 and the Tax Reform Act of 1986 were instrumental in changing employer incentives to provide benefits.⁴⁰ This growth in the number of employees under leasing arrangements had an impact on the industry classification of workers. Leasing agencies are asked to complete a multiple worksite report (MWR) form to identify the industry of each of their clients. If they do not do so, leased workers that previously were counted in the industry of the business site are counted in help supply services. Whereas most leasing firms complete the MWR (83 percent of establishments in 1996), firms that failed to do so add to the employment count in help supply services and diminish it in the industry where the primary work activity took place. Following an initial development period between 1987 and 1990, when the NAPEO indicated that leasing firms quadrupled, employee leasing services have grown at a rate similar to help supply services. Over the last several years, leased employees accounted for 16 percent of employment in help supply services.

it serves. In the most recent recession (1990-91), employment in the private economy, as measured by the Current Employment Statistics (CES) Survey, fell only 1.4 percent over the year, compared to 5.3 percent in the personnel supply industry. Job reductions in help supply in the most recent recession were less severe than in the 1974 and 1981-82 recessions, partly because the 1990-91 recession lasted only half as long; and the overall drop in employment was less steep.

Worker portrait

Demographic makeup. What characteristics do workers in this industry have? Perhaps the single greatest common denominator among personnel supply workers is that they tend to be young. At least half of these workers are under age 35, with only a small percentage over the age of 45. Interestingly, even as temporary help employment has expanded, the age distribution of personnel supply workers has remained unchanged. This has held true, although the rate of growth in the population of the young has declined.⁴¹ Many students turn to staffing services for employment.

(Twenty-one percent of temporary workers in a 1997 survey came to their first assignment as a temporary directly out of school.) Combined with a turnover rate of 393 percent in 1997, an absence of "aging" in the temporary work force also implies that workers are not temping throughout their careers.⁴² For many temporary help workers, this is a transition to a permanent career.⁴³

Although a majority of temporary help workers are white, the proportion is smaller than among workers in traditional arrangements.⁴⁴ Unlike workers in traditional jobs, the majority of temporary help workers are women. Since 1982, however, the percent of help supply workers who are women declined, and the percent of all persons on nonfarm payrolls who are women increased. (See chart 1-12.) Both proportions have been relatively stable since 1994 and stood at 53 percent women in help supply and 48 percent on all nonfarm payrolls in 1998.

Occupational and industrial trends. The proportion of male workers in the personnel supply industry grew, as blue-collar positions surged from 9 percent of all temporary help workers in 1983

to 23 percent in 1993.⁴⁵ According to a February 1997 CPS supplement, over 41 percent of male temps are operators, fabricators, and laborers, whereas more than 50 percent of female temps work in administrative-support functions.⁴⁶ These proportions were little changed from the original CPS supplement of 1995.⁴⁷ Growth in blue-collar occupations was verified by payroll data in a survey conducted for the National Association of Temporary and Staffing Services (NATSS), covering the period that males were increasing their participation in the industry. In 1997, the industrial category represented 34 percent of payroll, second only to the office and clerical segment, as the gap between the two narrowed over time.⁴⁸ The technical and professional payroll has changed little in recent years, and the percent of payroll attributed to medical services has declined. (See chart 1-13.)

Identifying the industries supported by temp help is problematic, because temporary help firms typically do not maintain records on the industries of their clients. The large volume and rapid turnover of companies for whom temp agencies provide employees make such data gathering very difficult. Also, temporary help firms have little need for the specific industrial classification of their clients. In contrast, the specific *occupation* for which the agency provides temporary help is very important to both the temp agency and the client firm. Therefore, excellent data exist on occupations of temp help workers but not on the industry to which they are assigned. However, a supplement to the CPS conducted in 1995, and then again in 1997, attempted to identify the industries where temporary employees work. Through follow-up questions to persons who identified themselves—or someone in their household—as a temporary worker, these surveys indicated that the percent of all temporary workers placed in manufacturing was 34 in 1995 and 32 in 1997. Thirty-nine percent of all temporaries were in the services group in 1995, whereas 42 percent were there in 1997. Surprisingly, the percentage of women temporaries placed into manufacturing positions was relatively high—26 percent in 1995 and 27 percent in 1997. Significant proportions of male temps were found in the service sector, 30 percent in 1995 and 31 percent in 1997.⁴⁹ Whereas women have a greater association with services and a lesser affinity to manufacturing, male workers reflect the opposite image. Given the small proportion of manufacturing to the overall economy, this would suggest a greater use of temporary services by manufacturing industries.

The migration of males into temporary help occurred coincident to a steady increase in temporary help employment in the category of operators, fabricators, and laborers over the decade. (See table 1-5.) This category contains machine setters, set-up operators, and assemblers and fabricators—occupations that typically are manufacturing-related. Helpers, laborers, and material movers—a very large component of operators, fabricators, and laborers—provide support for a variety of industries. In contrast to the growth in these blue-collar occupations, the share of temporaries in administrative occupations declined, as did the shares in professional specialty and technician occupations. However, the data do not reveal what industries are associated with these declines.

Worker skills. Whereas the occupational data do not reveal the industries being supported by personnel supply workers, they do indicate that the work force is relatively low skilled. The proportion of clerical and administrative workers in temporary help is more than double the proportion represented in the aggregate labor force, and the same is true of the operators, fabricators, and laborers category. Since these two categories comprise about two-thirds of employment in temporary help, one would expect that overall educational attainment would reflect similarly low levels. Since only about 16 percent of *all* employees in administrative support and 5 percent of all operators, fabricators, and laborers are college graduates, one would expect that the educational attainment level of temporary help workers would be low.⁵⁰ Surprisingly, 22 percent have a college degree—a rate nearly identical to that of the general population—with only 11 percent having not earned a high school diploma.⁵¹ Among workers in traditional arrangements, 30 percent had college degrees in 1996.⁵² The most common level of education reported by a temporary worker was “less than a bachelor’s degree.”

Although temporary workers in the aggregate have more education than their jobs require, education is only one measure of a person’s ability to perform a job. To some extent, a desire for temporary employment also can reflect individual preferences for leisure over work, as some workers do not want the inflexibility inherent in full-time jobs. Temporary workers may also face a period of time when they place priority on other life events. For example, the recent birth of a child is often associated with a desire for flexibility and can increase the propensity for part-time employ-

ment.⁵³ Whereas this is the case for a minority of workers—24 percent of those surveyed by NATSS indicated that they did *not* want a full-time permanent job—the majority would have preferred a full-time position.

Hours and earnings

Do workers in the help supply services industry have lower pay and fewer hours of work each week than coworkers in more traditional job arrangements? The earnings and hours of individuals in temporary work arrangements appear to be determined more by the *type* of work performed than by the industry. In fact, some temporary workers in white-collar occupations are paid more than permanent coworkers.⁵⁴ At the other end of the spectrum, some employees of the help supply services industry have experienced problems being paid what Federal law mandates. These situations will be viewed in more detail later in this section.

Another misconception of help supply services employees is that they are primarily part-time workers. Although these workers averaged about 27 hours each week in 1982, by 1996, the average workweek was equal to that of all workers in the services sector. (See chart 1-14.) This, coupled with the huge growth in the number of employees in this industry, shows an increased *intensity* of their use, which may reflect the change in the occupational mix of the industry. However, the *duration* of temporary workers' assignments is very short, compared with traditional employment, as the pool of workers making up this industry's labor force turns over much faster than the pool of those in more traditional work arrangements. A special supplement to the CPS completed in 1995 determined that 42 percent of temps had been at their current assignment less than 3 months, 72 percent less than 9 months, and only 16 percent had spent more than a year in their current assignment.⁵⁵

The unemployment rate of persons who most recently were employed in the personnel supply industry is high—usually three times the rate for all workers in private industry. In 1998, 14 percent of personnel supply service workers were unemployed, compared to 5 percent among all private wage and salary workers. Since those who quit working because they no longer want to work are not counted as unemployed, one must assume that there are other reasons for this unemployment, even though a portion of these individuals may have simply been waiting for their next temporary assignment. At any rate, temporary workers are unemployed with greater frequency than other groups, partly due to the nature of the tem-

porary help industry. Temps appear to be at the mercy of business cycles, far more than the employees of other industries. When the economy enters a downturn, these workers quickly feel the pinch in their paychecks, and average weekly earnings show declines during recessions. As the economy returns to growth, temps make pay gains with equal vigor. This variability can be an attractive feature to establishments considering using the help supply industry's services. The high turnover of temps would be a factor in allowing wages to be responsive to economic conditions.⁵⁶ A portrait of earnings *variability* in help supply services is shown in chart 1-15.

When comparing wages of temporary workers to wages of permanent workers, several caveats should be observed. Permanent workers normally have more firm-specific knowledge and on-the-job experience, because they have been at the same establishment for a longer period of time. Consequently, it is reasonable for wage rates to reflect these differences. Also, as wages are only one of several components of compensation, permanent employees receive additional pay in forms other than wages: Health and life insurance, transportation subsidies, paid travel, etc. By comparison, temps generally have few benefits. (This topic is discussed in more detail in a later section.)

In observing hours and earnings, and comparing them to the services industry division, a notable trend appears. Whereas average weekly hours increased for individuals in help supply services to equal those of all services by 1996, earnings moved in the opposite direction. Wage gains over time have not matched those of other service industries. In 1982, average hourly earnings for nonsupervisory workers in the help supply industry were \$5.97. This was 86 percent of the level in all services. By 1998, average hourly earnings had moved up to \$10.18 in help supply services—less than 80 percent of the wage in all services. Whereas a changing composition of the occupations within help supply services may explain this growing discrepancy in earnings, it is unclear if that is the only factor.

Workers supplied by temp agencies encompass those in high-paid occupations, as well as those in some of the lowest-paying jobs. An example of a premium pay occupation is computer programming. The assignments this type of work generates fit well with help supply services output. For example, when a business is in need of a specific type of programming skill to complete just one task, temps are often the best choice. Because employers pay by the hour and offer few benefits, temporary workers' wages may be higher

Productivity Measures and the Help Supply Industry

Labor productivity for an industry is measured as the ratio of output, the goods or services produced, to labor input—the amount of hours worked—for a specified time such as a year. The total amount of goods or services produced is generally determined by counting the volume of goods and services produced or by deflating the value of goods and services produced with an appropriate price index. Labor input is a count of all hours worked by all employees in an industry during a period of production.

The help supply industry supplies (produces) labor services to other businesses. Output is the number of labor hours supplied to other businesses, and the labor input is the number of hours worked by employees of the help supply establishment who find and place temporary workers in positions. Presently, employment and hours data collected for this industry include both employees who work for the industry, placing the temporary workers, and the temporary workers themselves. As such, neither a correct labor input measure can be estimated from these data, nor can these data be used to estimate the quantity of services being produced by this industry. Furthermore, a deflated value measure of output cannot be calculated at present, because the Producer Price Index for the help supply industry has been calculated for only the past 4 years.

What effect does the help supply industry have on productivity measures of *other* industries which use its output? Has the growth of this industry begun to boost labor productivity, as measured, in the industries to which the labor are supplied, including auto manufacturing? To the extent that temps—whose hours of work are counted as labor input in the service sector—produce output in manufacturing, measured labor productivity in manufacturing will be boosted. However, measures of productivity aggregating a complete set of inputs, called multifactor or total factor productivity, will not be affected by this trend, because multifactor productivity captures the input of temporary workers as purchased business services.

than the permanent computer professionals at the establishment where they are assigned. (*Total* compensation may be less.) One help supply services company's technical workers cost its customers \$40 to \$200 an hour. These temps include network administrators and programmers, and they can earn more than \$100,000 a year.⁵⁷ A less obvious example is the physicist employed as a temporary worker. One of the largest help supply services companies offers Ph.D. physicists to its customers in high-tech fields and expects to place these highly skilled people into 6-month to 2-year assignments.⁵⁸ These employees are expected to develop new computer chips and types of software. Again, because these temps—even physicists—are paid on an hours-worked basis, they probably will earn more than permanent co-workers.

Many workers in help supply services are at the opposite end of the wage spectrum. These include day laborers. This type of work is relatively unskilled and sometimes subject to abuses by employers. The U.S. Department of Labor is charged with enforcing the Fair Labor Standards Act. In 1996, the Labor Department brought a case against two Massachusetts help supply services firms for not properly following this act. In par-

ticular, these firms did not pay 619 of their employees overtime pay when the employees worked more than 40 hours a week. The help supply services firms had classified these workers as independent contractors, but an administrative law judge disagreed.⁵⁹ The Labor Department also filed a lawsuit seeking back wages and damages for the employees. Then-Secretary Reich stated, "This case should discourage other temporary employment firms from trying to evade the Nation's wage and hour laws by classifying low-skilled workers as independent contractors."⁶⁰ The differences between temporary worker and independent contractor are subtle but very important in determining wage and hour law applications.⁶¹

Factors spurring temporary hiring

Competition. The corporate work environment reflects a market that is less regulated, more affected by international trade, and more subject to rapid change than ever before. The resultant volatility has led to the desire for a more flexible labor "infrastructure." To meet this need for flexibility, business increasingly is contracting labor

for a specific purpose and for a specific duration. Just-in-time in the materials market is being met by just-in-time in the labor market, as expenditures for labor are determined more by the bottom line than by norms and traditions.⁶²

Empirical results suggest that demand-side factors, rather than supply-side factors, such as an influx of women into the labor force, have been more useful in explaining variation and growth in temporary employment in the 1980s.⁶³ A higher-than-average growth in output, growth in the ratio of fixed to variable labor costs, and increased competition in foreign markets are important in explaining the growth of temporary employment.⁶⁴ To some extent, increasing amounts of paid vacation for existing staff also increases the use of temps. Costs associated with adjusting a permanent workforce to changes in demand often result in firms incurring excessive labor costs in lower-production periods. The contracting of temps allow firms to respond quickly to changes in production schedules and to eliminate excess overhead. Not only is employment easier to adjust in the short run, but the hours of temporaries also are easier to adjust than in other segments of the labor market.⁶⁵

Increasing fixed labor costs. The increasing cost of providing benefits and hiring and firing workers has made permanent workers relatively more expensive than temporary workers. The incentive to contract out low-paying jobs may have been encouraged by the high share of insurance costs in total compensation costs in these jobs, as well as overall increasing disparity in the growth of benefits to that of wages. (See chart 1-16.) Legally required benefits, which include Social Security, unemployment insurance, and Medicare, are the largest non-wage employer costs. Following these, insurance costs are major portions of compensation packages. Health insurance consumes a large portion of insurance costs, although slightly less than in recent years.⁶⁶ Whereas health care benefits are available to about two-thirds of temporary workers, few actually partake of them. Many temporary workers have difficulty becoming eligible for many provided benefits and instead tend to rely on their spouses' or parents' plans.⁶⁷ Temporary employees are less than half as likely to be eligible for health coverage as permanent workers, although this is to some degree a function of high turnover and short employment periods.⁶⁸

Health plan costs, as a percent of compensation, are high for low-paid workers. For example, the insurance cost to employers of full-time ad-

ministrative support averaged 9.5 percent of compensation, compared to 7.1 percent for all white-collar occupations. The relative absence of health insurance costs saves employers more than \$1.00 per hour for administrative support positions that in the temporary help industry carried an average wage of only \$7.96 in straight-time hourly earnings in 1994.⁶⁹ For material handlers, helpers, and laborers, insurance costs also are higher than for the average private worker. The low cost of contracting with temporary workers has led to a contingent workforce that derives few benefits from their employers. For young temporary help workers, this lack of benefits does not seem to be much of a loss, as many decline coverage even when eligible.

A lack of benefits is not confined to the health arena. Other benefits, such as paid holidays and vacations, also require a minimum hours-of-service requirement that many temps are unable to fulfill. In 1989, the occupational compensation survey found that 43 percent of temporary workers had to meet an annual minimum of 900 hours of service to receive paid holidays.⁷⁰ Only 36 percent of those surveyed in 1997 received paid vacation days; many temporaries simply don't work long enough to qualify for many benefits.⁷¹

Cost of flexibility has been reduced. It is easy to see why compensation costs are lower for temporary workers than for permanent workers, especially with the relative absence of employee benefits. But does this cost advantage hold after help supply services establishments include charges to pay for administrative salaries, overhead, and earn a return on their investment? Apparently so, as prices charged in the temporary help supply industry have grown at a slow rate of 1.9 percent on an annual basis since 1995.⁷² This data series alone provides limited evidence, since BLS only recently began measuring prices. However, the rate of growth in the price of help supply services has been less than the average rate of growth in civilian compensation over this period. (See chart 1-17.)

A variety of factors in the marketplace may have improved the efficiency of temp help workers. First, temporary workers often are prepared for job assignments through training provided by temporary agencies, and training expenditures by these agencies have increased dramatically in recent years.⁷³ This job-related training is extremely valuable for workers who are re-entering the workforce, and clerical and administrative workers especially are singled out. Three-fourths of

help supply establishments provide instruction in word processing, and computer-based tutorials are widely used. Additionally, some companies provide training that simulates the use of clients' software.⁷⁴ Temporary employees have indicated that computer skills are more important than others acquired through employer-based training.⁷⁵ Even without help supply firms providing training, the standardization of software and the similarity of existing word processing programs has made it easier for employees to transfer skills from job to job.

The spread of technology has not been confined to work activity itself, as new software programs also have simplified the process of matching applicants to jobs. Software programs have even replaced some of the work of recruiters. Certain programs allow candidates to submit resumes via the Internet and then scan those resumes for target words that may indicate qualification for job openings.⁷⁶ These same programs are sometimes tied to the payroll system of employees and often are capable of interfacing with other applications, as well.

A poorly placed worker can impose large costs on a company, whether those costs are "soft," as in the loss of a sale, or "hard," like the abuse of physical inventory.⁷⁷ Many employers are finding that the screening services of staffing companies are superior to their own, as many companies simply do not rival the screening offered by temporary agencies. Since the success of staffing firms relies on their ability to provide successful matches, help supply firms invest in a variety of tests, both general and job-specific.

According to the 1998 Salary and Employment Trends Survey conducted by Accustaff, a large temporary help staffing company, the most frequently cited reason for using supplemental staff was to preview potential permanent employees (30.9 percent), followed by staffing for special projects (27.6 percent) and peak periods (23.4 percent). The practice of auditioning permanent employee candidates as temporaries first is the

fastest growing segment of the staffing industry, reflecting the desires by employers to observe candidates for a trial period before deciding whether they are the right fit for the job.⁷⁸

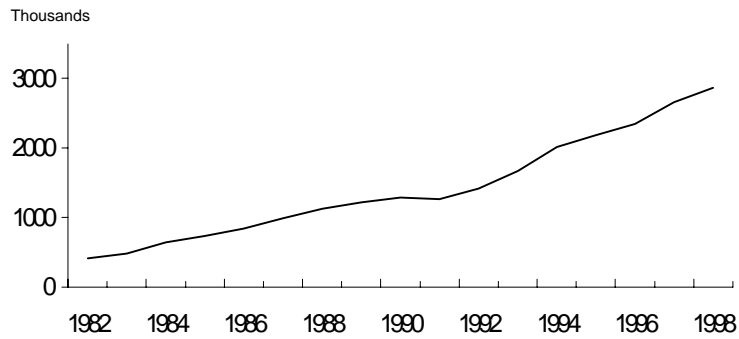
Conclusion

A restructuring of the labor market in recent years has resulted in rapid growth in the temporary help supply services industry. Producers strive to make labor as flexible a cost as possible in the production process, with increasing numbers of employees hired for work on specific projects or for specific durations. For example, employers often contract out for tasks that are not an integral part of the firm's mission or for jobs that are seasonal in nature. Employers have greater control over labor costs, when they are free to vary labor use, as product and service demands fluctuate. Temporary workers often are the answer to controlling these labor costs.

The growth of temporary labor represents a shift in the way employers plan staffing needs. This growth has stemmed from the need to drive down costs (especially during low production times). The growing share of benefits in total compensation for permanent employees is increasing the relative attractiveness of the temporary labor market. Additionally, companies preview new employees by contracting with temporary help companies for short assignments with these employees as they evaluate their skills. Also, firms are tapping into the recruiting and screening services of staffing agencies, rather than incurring these costs themselves.

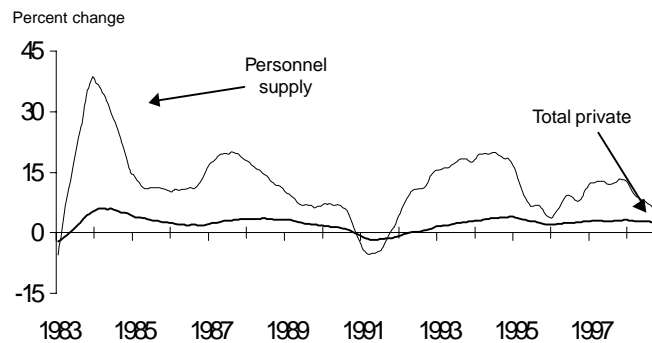
Whereas this shift in hiring arrangements is profitable for employers, many temporaries earn less than their counterparts in other industries, primarily because—as a group—temps do not earn many benefits. Although industry earnings are difficult to interpret due to the transient nature of this workforce, *fluctuations* in temp earnings are more prominent than for all private workers. Finally, compared to traditional work, temporary work is unstable, as temporary employment, hours, and earnings fluctuate with greater intensity.

Chart 1-9. Employment in help supply services, SIC 7363, 1982-98



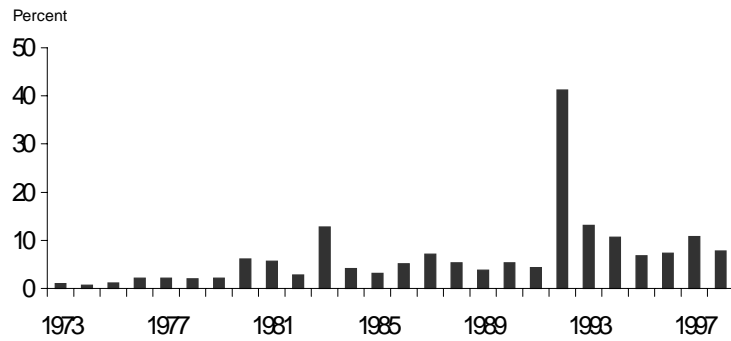
SOURCE: Current Employment Statistics Survey, Bureau of Labor Statistics, U.S. Department of Labor

Chart 1-10. Employment, total private and personnel supply services, SIC 736, 1983-98



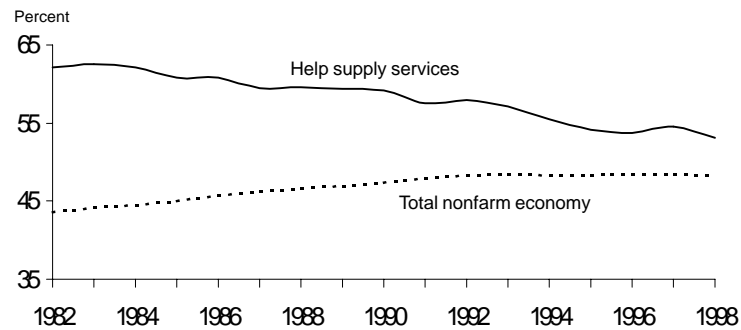
SOURCE: Current Employment Statistics Survey, Bureau of Labor Statistics, U.S. Department of Labor (calculations based on the 3 month moving averages)

Chart 1-11. Personnel supply services, SIC 736, employment change as a percent of total nonfarm employment growth, 1973-98



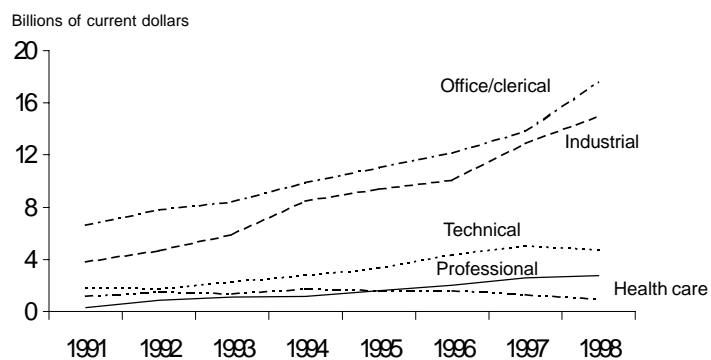
SOURCE: Current Employment Statistics Survey, Bureau of Labor Statistics, U.S. Department of Labor, annual averages

Chart 1-12. Employed who are female, total nonfarm economy and help supply services, SIC 7363, 1982-98



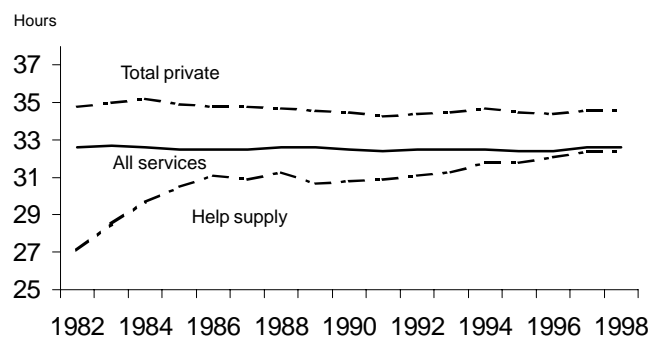
SOURCE: Current Employment Statistics Survey, Bureau of Labor Statistics, U.S. Department of Labor

Chart 1-13. Temporary staffing industry payroll by segment, 1991-98



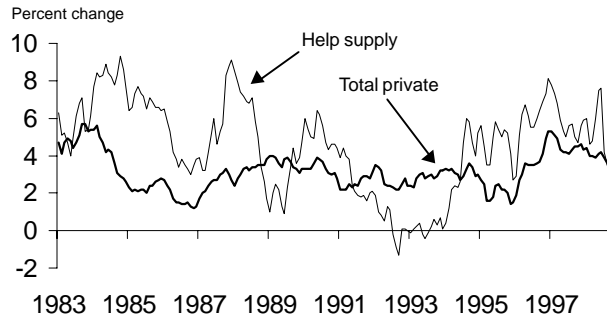
SOURCE: National Association of Temporary and Staffing Services

Chart 1-14. Average weekly hours in help supply, SIC 7363, all services, and total private, for nonsupervisory workers, 1982-98



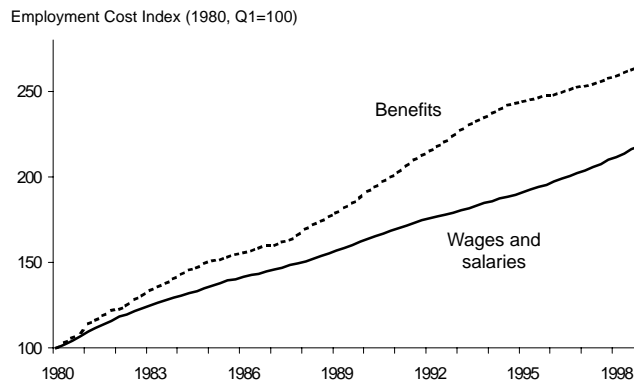
SOURCE: Current Employment Statistics Survey, Bureau of Labor Statistics, U.S. Department of Labor

Chart 1-15. Average weekly earnings, help supply, SIC 7363, and total private, 1983-98



SOURCE: Current Employment Statistics Survey, Bureau of Labor Statistics, U.S. Department of Labor (calculated as 3 month moving averages of over-the-year percent changes).

Chart 1-16. Growth in benefits and in wages and salaries, private industry, all workers 1980-98



SOURCE: Employment Cost Index, Bureau of Labor Statistics, U.S. Department of Labor

Chart 1-17. Producer Price Index for help supply services, SIC 7363, and civilian worker compensation growth, 1995-98

Percent change (calculated June to June)



SOURCE: Producer Price Index and Employment Cost Index, Bureau of Labor Statistics, U.S. Department of Labor

Table 1-1. **Indexes of output, hours, and output per hour and percent change, selected industries, 1987-98**

Year	SIC 3711 Motor vehicle assembly			SIC 3714 Motor vehicle parts			SIC 3465 Automotive stampings		
	Output	Hours	Output per hour	Output	Hours	Output per hour	Output	Hours	Output per hour
1987	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1988	105.26	95.75	109.93	110.85	105.79	104.79	102.14	106.06	96.30
1989	105.23	95.49	110.20	105.76	107.29	98.57	99.28	106.83	92.93
1990	95.47	87.80	108.73	101.41	100.77	100.64	88.23	98.69	89.40
1991	85.81	83.30	103.02	98.07	99.96	98.10	80.65	93.05	86.67
1992	95.23	82.03	116.09	113.31	106.36	106.54	99.04	97.97	101.09
1993	100.91	87.31	115.58	129.40	113.49	114.02	111.53	104.51	106.72
1994	114.73	97.93	117.15	152.25	127.62	119.30	123.61	115.46	107.06
1995	115.88	101.04	114.69	161.40	135.65	118.98	129.66	121.10	107.07
1996	114.41	97.13	117.79	165.09	140.11	117.83	134.83	120.51	111.88
1997	119.39	98.13	121.67	173.84	144.14	120.60	139.58	117.49	118.80
1998	120.03	91.98	130.50	172.27	142.16	121.18	142.99	114.10	125.32
Average annual percent change:									
1987-98	1.67	-0.76	2.45	5.07	3.25	1.76	3.30	1.21	2.07
1990-98	2.90	.58	2.31	6.85	4.40	2.35	6.22	1.83	4.31
1990-91	-10.12	-5.13	-5.26	-3.30	-0.79	-2.52	-8.59	-5.71	-3.05
1991-98	4.91	1.43	3.44	8.38	5.16	3.06	8.52	2.96	5.41

Table 1-2. **U.S. sales and production of light vehicles, 1986-97**

Year	U.S. sales	U.S. production	Import sales	Import share
1986	16,108,392	11,335,241	4,162,191	0.26
1987	14,976,770	10,925,601	4,020,942	.27
1988	15,556,278	11,237,954	3,711,544	.24
1989	14,540,494	10,872,203	3,337,335	.23
1990	13,857,688	9,783,433	3,011,876	.22
1991	12,310,019	8,794,974	2,575,375	.21
1992	12,865,279	9,721,454	2,347,582	.18
1993	13,892,834	10,898,739	2,153,831	.16
1994	15,058,578	12,249,987	2,144,807	.14
1995	14,730,753	11,974,691	1,908,438	.13
1996	15,096,183	11,832,245	1,714,178	.11
1997	15,121,690	12,130,486	1,947,019	.13

SOURCE: *Ward's Automotive Yearbook*, 1996, 1997, and 1998

Table 1-3. Average hourly earnings of production workers, selected industries, 1958-98

Year	SIC 3711 Motor vehicle assembly	SIC 3714 Motor vehicle parts	SIC 3465 Automotive stampings	All manufacturing
1958	\$2.64	\$2.52	na	\$2.10
1959	2.80	2.68	na	2.19
1960	2.91	2.76	na	2.26
1961	2.97	2.82	na	2.32
1962	3.10	2.95	na	2.39
1963	3.22	3.07	na	2.45
1964	3.32	3.19	na	2.53
1965	3.45	3.33	na	2.61
1966	3.55	3.44	na	2.71
1967	3.66	3.53	na	2.82
1968	4.02	3.89	na	3.01
1969	4.23	4.11	na	3.19
1970	4.42	4.17	na	3.35
1971	4.95	4.63	na	3.57
1972	5.35	5.08	\$5.23	3.82
1973	5.70	5.42	5.47	4.09
1974	6.23	5.81	5.85	4.42
1975	6.82	6.31	6.52	4.83
1976	7.45	6.96	7.36	5.22
1977	8.22	7.80	8.14	5.68
1978	8.98	8.42	8.80	6.17
1979	9.74	8.84	9.40	6.70
1980	10.80	9.42	10.35	7.27
1981	12.29	10.38	11.37	7.99
1982	13.01	10.91	11.62	8.49
1983	13.36	11.61	12.22	8.83
1984	14.12	12.16	12.81	9.19
1985	14.81	12.69	13.60	9.54
1986	14.99	12.71	13.71	9.73
1987	15.33	12.69	13.58	9.91
1988	16.09	13.11	13.99	10.19
1989	16.51	13.26	14.16	10.48
1990	17.26	13.22	14.34	10.83
1991	18.34	13.62	15.05	11.18
1992	18.32	14.22	15.42	11.46
1993	19.44	14.74	16.08	11.74
1994	20.71	15.56	16.47	12.07
1995	20.57	16.18	16.30	12.37
1996	21.06	16.46	16.96	12.77
1997	21.63	16.60	17.06	13.17
1998	21.81	16.48	17.26	13.49

na = Data not available.

Table 1-4. **Average new car prices and percent change in disposable personal income, 1988-97**

Year	Domestic car price	Import car price	Disposable personal income	Percent change from prior year		
				Domestic car price	Import car price	Disposable personal income
1988	\$14,029	\$15,537	\$14,881			
1989	14,907	16,126	15,771	6.3	3.8	6.0
1990	15,638	17,538	16,689	4.9	8.8	5.8
1991	16,487	17,795	17,179	5.4	1.5	2.9
1992	17,252	20,552	18,029	4.6	15.5	4.9
1993	17,219	21,988	18,558	-0.2	7.0	2.9
1994	18,360	24,595	19,251	6.6	11.9	3.7
1995	17,174	23,995	20,050	-6.5	-2.4	4.2
1996	16,998	27,441	20,840	-1.0	14.4	3.9
1997	18,199	27,695	21,633	7.1	0.9	3.8

SOURCE: *Automotive News Market Data Book 1998*, Bureau of Economic Analysis, U.S. Department of Commerce

Table 1-5. **Personnel supply services, SIC 736, occupational distribution, selected years, 1988-2006**

Occupation	1988	1990	1992	1994	1996	2006 projection
	Percent distribution					
Executive, administrative and managerial	6.9	6.7	6.4	5.8	5.8	5.6
Professional specialty occupations	6.4	6.6	6.0	5.3	5.3	4.9
Engineers	0.9	0.9	1.4	1.1	1.1	1.2
Health Assessment and Training	4.6	5.0	3.3	2.8	2.8	2.4
Technicians and related support occupations	5.5	5.5	6.0	5.5	5.5	5.4
Administrative support occupations, including clerical	45.4	46.0	41.8	40.1	40.1	35.7
Service occupations	8.6	8.6	8.3	9.5	9.5	9.4
Health technicians and technologists	3.3	3.5	3.6	3.2	3.2	2.8
Engineering and science technicians	1.7	1.6	2.0	1.8	1.8	2.1
Precision production, craft, and repair occupations	3.1	2.6	3.8	5.0	5.0	5.5
Operators, fabricators and laborers	21.7	21.6	24.0	24.8	24.8	28.8
Helpers, laborers and material movers, hand	14.8	15.0	16.4	16.3	16.3	18.5

SOURCE: Office of Employment Projections, Bureau of Labor Statistics, U.S. Department of Labor (not all occupations displayed)

Endnotes

¹ Paul Ballew, Robert Schnorbus, and Helmut Hesse, "The Automobile Industry and Monetary Policy: An International Perspective," *Business Economics*, National Association of Business Economists, Washington, D. C., October 1994, pp. 29-34. See also Oliver Blanchard, "The Production and Inventory Behavior of the American Automobile Industry," *Journal of Political Economy*, Vol. 91, June 1983, pp. 365-400 and Oliver Blanchard and Angelo Medino, "The Cyclical Behavior of Prices and Quantities: The Case of the Automobile Market," *Journal of Monetary Economics*, Vol. 17, May 1986, pp. 379-407.

² Christopher J. Singleton, "Auto Industry Jobs in the 1980's: A Decade of Transition," *Monthly Labor Review*, February 1992, pp. 18-27. See also Thomas A. Kochan, Russell D. Lansbury, and John Paul MacDuffie, *After Lean Production – Evolving Employment Practices in the World Auto Industry*, Cornell University Press, 1997, pp. 9-42, 61-83.

³ For the purposes of this chapter, the motor vehicle industry is composed of motor vehicles and car bodies assemblers (SIC 3711), manufacturers of motor vehicle parts and accessories (SIC 3714), and manufacturers of automotive stampings (SIC 3465). The first two, plus manufacturers of trucks and buses (SIC 3713), manufacturers of truck trailers (SIC 3715), and manufacturers of motor homes (SIC 3716) compose motor vehicles and equipment (SIC 371).

⁴ John Duke and Lisa Usher, "BLS Completes Major Expansion of Industry Productivity Series," *Monthly Labor Review*, September 1998, pp. 35-51.

⁵ The index of hours is derived from (1) production worker hours, which are based on production worker employment and average weekly hours data; (2) number of nonproduction workers; (3) an estimate of average annual hours paid for nonproduction workers. Production worker hours include all the hours at the plant, worked or paid for, and include paid time for vacations, holidays, and sick leave. Overtime and other premium pay hours are included based on actual time spent at the plant. The estimates of nonproduction worker average annual hours were prepared by the Bureau of Labor Statistics at the 2-digit industry level and were derived primarily from studies undertaken by the Bureau of Labor Statistics. Average hours for nonproduction workers were multiplied by the number of nonproduc-

tion workers to obtain total nonproduction worker hours. Indexes based on nonproduction worker hours are subject to a wider margin of error than are indexes involving only production worker hours, because it is necessary to estimate the average hours of nonproduction workers. Errors in such estimates, however, would have a relatively insignificant effect on the trend in hours for all employees. Total hours are the sum of production worker hours and nonproduction worker hours.

⁶ Ward's Autoworld, The University of Michigan Management Briefing Seminars, September 24, 1998, p. 2.

⁷ Steve Babson, *Lean Work: Empowerment and Exploitation in the Global Auto Industry*, Wayne State University Press, 1995, pp. 6-7.

⁸ "Auto Suppliers Handle More Design Tasks, Lower Costs," *Purchasing*, Vol. 124, Number 5, April 9, 1998, pp. 49-50.

⁹ Dave Welch and Daniel Howes, "Suppliers Will Help Create New Vehicle Categories," *The Auto Industry at a Crossroads, The Detroit News*, December 21, 1998, pp. 1-2.

¹⁰ Dave Phillips, "New Approaches Threaten Big Labor," *The Auto Industry at a Crossroads, The Detroit News*, December 21, 1998, pp. 1-6.

¹¹ Materials data are reported in the 1992 *Census of Manufactures* - table 7a, Bureau of the Census, U.S. Department of Commerce.

¹² *Automotive News 1998 Market Data Book*, Crain Communications, Detroit, Michigan, p. 9.

¹³ *Automotive News 1999 Market Data Book*, Crain Communications, Detroit, Michigan, p. 9.

¹⁴ *World Motor Vehicles Data - 1998*, American Automobile Manufacturers Association (AAMA), Detroit, Michigan, p. 8.

¹⁵ *Quarterly Gross Domestic Product (GDP) Report – First Quarter 1999*, Bureau of Economic Analysis, U. S. Department of Commerce.

¹⁶ *Automotive News 1999 Market Data Book*, Crain Communications, Detroit, Michigan.

¹⁷ Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations – Fourth Quarter 1998, Bureau of the Census, U. S. Department of Commerce. Note: All data are in nominal dollars, not seasonally adjusted.

¹⁸ *Employment and Wages Annual Averages, 1997*, Bureau of Labor Statistics, U.S. Department of Labor, December 1998, Bulletin 2511.

¹⁹ For an early study on new automotive sites, see Andrew Mair, Richard Florida, and Martin Kenney, "The New Geography of Automobile

Production: Japanese Transplants in North America," *Economic Geography*, October 1988, pp. 352-373.

²⁰ Unpublished tabulations from the Current Population Survey, 1998 annual averages.

²¹ Hourly earnings in the motor vehicles assembly industry rose from \$2.91 in 1960 to \$21.81 in 1998. In comparison, workers in all manufacturing industries earned hourly rates of \$2.26 in 1960, \$10.83 in 1990, and \$13 in the mid-1990s.

²² Occupational Employment Statistics Survey, Bureau of Labor Statistics, U.S. Department of Labor.

²³ Current Employment Statistics Program, Bureau of Labor Statistics, U.S. Department of Labor. Internet site: <http://stats.bls.gov/ceshome.htm>

²⁴ Unpublished tabulations from the Current Population Survey, 1998 annual averages.

²⁵ Data are for employed private wage and salary workers. Unpublished tabulations from the Current Population Survey, April 1993.

²⁶ James R. Healey and Michelmine Maynard, "Big Three: Auto Firms Will Dwindle," *Money* Section, *USA Today*, Sep. 24, 1998.

²⁷ *Automotive News Market Data Book, 1993-99*, Crain Communications, Detroit, Michigan, p. 35.

²⁸ *Automotive News Market Data Book, 1993-99*, pp. 52-54.

²⁹ *Automotive News Market Data Book, 1993-99*, p. 35.

³⁰ Standard and Poor's Industry Surveys, Autos and Auto Parts, January 9, 1997, p. 11.

³¹ "The Road Ahead for the U.S. Auto Industry," International Trade Administration, U.S. Department of Commerce, March 1998, p. 2.

³² *Automotive News 1999 Market Data Book*, Crain Communications, Detroit, Michigan, p. 60.

³³ James Lowe, Rick Delbridge, and Nick Oliver, "High-Performance Manufacturing: Evidence from the Automotive Components Industry," *Organization Studies*, Vol. 18, Number 5, 1997, pp. 783-798.

³⁴ See Anne E. Polivka and Thomas Nardone, "On the Definition of 'Contingent Work'," *Monthly Labor Review*, December 1989, pp. 9-16, and Anne E. Polivka, "Contingent and Alternative Work Arrangements, Defined," *Monthly Labor Review*, October 1996, p. 3-9.

³⁵ As an example, see a report by the Economic Policy Institute, available at: <http://www.epinet.org/97labex1.html>. Also, in "The Rise of the Contingent Workforce: Growth of Temporary, Part-time, and Subcontracted Employment," in the National Policy Association's *Looking Ahead* magazine, Richard Belous includes

consultants, hired business service workers, subcontractors, and life-of-project employees.

³⁶ Other types of agencies in help supply include: Chauffeur registries, employment agencies (excluding theatrical and motion picture), executive placing services, employee leasing services, labor pools, and modeling services.

³⁷ Leased employees comprised about 16 percent of employment in help supply services in 1997. These workers are not in contingent employment arrangements, since the employment relationship is expected to be ongoing. Employee leasing generally refers to an assumption of the human resource function on behalf of *all or most* of a customer's workforce, rather than of a supplemental workforce. Also, see box note, "Terms Defining Leasing and Temporary Employees."

³⁸ Bruce Steinberg, "Profile of the Temporary Work Force, 1997," *Contemporary Times*, Spring 1998.

³⁹ National Association of Professional Employer Organizations 1997 Financial Ratio Survey, Available: <http://www.napeo.org/ind-statistics.htm>

⁴⁰ The law establishes coverage tests that require coverage of a minimum percentage of lower-paid employees. The tax code requires employers to include in their head count certain employees supplied by third-party contractors, when applying the coverage tests. For analyses of TEFRA, see: Leon E. Irish and Richard M. Lent, "TEFRA Brings Sweeping Changes to Pension Plans," *Legal Times*, Sept. 27, 1982; and Leon E. Irish, and others, "Tax Act Makes Important Changes in Benefit Area," *Legal Times*, July 23, 1984, and Edward A. Lenz, "Co-employment, Employer Liability Issues in Third-Party Staffing Arrangements," 1997, National Association of Temporary and Staffing Services (NATSS).

⁴¹ Declines in the population of those aged 20-34 are occurring in the 1990s. *Current Population Reports*, various, Bureau of the Census, U.S. Department of Commerce.

⁴² Bruce Steinberg, "Profile of the Temporary Work Force, 1997," *Contemporary Times*, Spring 1998.

⁴³ The 1995 NATSS survey found that nearly one-third of former temporary employees said their permanent job was a direct result of their temporary job, and 72 percent of former temporaries had found a permanent job. "Growth in Temporary Help Reduced Unemployment," July 1, 1998 news release.

⁴⁴ Sharon Cohany, "Workers in Alternative Employment Arrangements," *Monthly Labor Review*, October 1996, pp. 31-45.

⁴⁵ Lewis M. Segal and Daniel G. Sullivan, "The Temporary Labor Force," *Economic Perspectives*, March/April 1995, p. 11.

⁴⁶ Sharon Cohany, "Workers in Alternative Employment Arrangements: A Second Look," *Monthly Labor Review*, November 1998, table 6, p.10.

⁴⁷ Sharon Cohany, "Workers in Alternative Employment Arrangements," *Monthly Labor Review*, October 1996 pp. 31-45.

⁴⁸ Surveys done for NATSS define industrial occupations as: Assembler, carpenter, construction, driver, electrician, food service, inventory, laundry, machinist, maintenance, mechanic, painter, picker, plumber, printer, production line, shipping, warehouse worker, guard, and welder.

⁴⁹ Cohany, "Workers in Alternative Employment Arrangements" and "Workers in Alternative Employment Arrangements: A Second Look."

⁵⁰ Unpublished detailed occupational and industry employment tables, 1996 annual averages from the Current Population Survey, table 10, employed persons by occupation, years of school completed, sex, race, and Hispanic origin.

⁵¹ Since 1989, slightly more than 20 percent of the population has completed a bachelor's degree, with the percent of college graduates highest among those age 25- 29. The level of educational attainment of help supply service workers may reflect their relative youth. Younger adults, on average, have more education than older adults. Available: <http://www.census.gov/population/pop-profile/p23-189.pdf>

⁵² There was a small increase in the percent of college graduates between the February 1995 and 1997 supplements. "Contingent and Alternative Employment Arrangements, February 1997," December 2, 1997 press release.

⁵³ Donna Rothstein, "Entry into and Consequences of Nonstandard Work Arrangements," *Monthly Labor Review*, October 1996, p. 78.

⁵⁴ Two economists of the Federal Reserve Bank of Chicago in analyzing BLS Current Population Survey data found that. "...full-time hourly white-collar SIC 736 workers earn 2.4 percent (standard error 1.4 percent) more than their non-SIC 736 counterparts." From: Lewis M. Segal and Daniel G. Sullivan, "The Temporary Labor Force," *Economic Perspectives*, March/April 1995, Federal Reserve Bank of Chicago, pp. 2-19.

⁵⁵ Cohany, "Workers in Alternative Employment Arrangements," pp. 31-45.

⁵⁶ In another study Segal and Sullivan found that in Washington State, "...the average duration is approximately two quarters and that ap-

proximately three quarters of temp employment is accounted for by spells of four quarters or less."

From: Lewis M. Segal and Daniel G. Sullivan, "Temporary Services Employment Durations: Evidence from State UI Data," *Working Paper Series Macroeconomic Issues Research Department (WP-97-23)*, Federal Reserve Bank of Chicago, December 1997.

⁵⁷ Marianne Kolbasuk McGee, "Just Don't Call Them Temps" *Informationweek*, May 12, 1997, issue 630, pp. 38-40.

⁵⁸ G. Pascal Zachary, "Looking for a Real Rocket Scientist? Manpower to Offer Physicists as Temps," *Wall Street Journal*, Eastern Edition, New York, November 27, 1996, p. A4.

⁵⁹ U.S. Department of Labor; Employment Standards Administration press release: "Massachusetts Temp Firms Ordered To Pay \$150,000 In Civil Money Penalties For Willful Violations of Federal Wage & Hour Law," Available: <http://www2.dol.gov/dol/opa/public/media/press/esa/esa96233.htm>

⁶⁰ "Employment firms face \$150,000 fine for wage violations," *Wall Street Journal*, Eastern Edition, New York, June 13, 1996, p. C19.

⁶¹ In *Martin v. Selker Bros., Inc.*, 949 F.2d 1286, 1293 (3rd Cir. 1991) the court set some factors for deciding whether or not a worker is an independent contractor. Specifically they are: 1) the degree of the alleged employer's right to control the manner in which the work is to be performed; 2) the alleged employee's opportunity for profit or loss depending upon his managerial skill; 3) the alleged employee's investment in equipment or materials required for his task, or his employment of helpers; 4) whether the service rendered requires a special skill; 5) the degree of permanence of the working relationship; 6) whether the service rendered is an integral part of the alleged employer's business. From: DOL/OALJ REPORTER: U.S. Department of Labor Administrative Review Board, *Reich v. Baystate Alternative Staffing, Inc.*, 94-FLS-22 (ARB Dec. 19, 1996), Available: <http://www.oalj.dol.gov/public/mtrad/decsn/94fls22c.htm>

⁶² Richard S. Belous, *The Contingent Economy: The Growth of the Temporary, Part-time and Subcontracted Workforce*, National Planning Association, Report 239, Washington, DC, 1989.

⁶³ Lonnie Golden and Eileen Appelbaum, "What Was Driving the 1982-88 Boom in Temporary Employment?" *American Journal of Economics and Sociology*, October 1992, pp. 473-493.

⁶⁴ Lonnie Golden, "The Expansion of Temporary Help Employment in the U.S., 1982-1992:

A Test of Alternative Economic Explanations,” *Applied Economics*, Vol. 28, No. 9, pp.1127-1141.

⁶⁵ Work hour flexibility is more pronounced among temporary help workers compared to labor in other industries. “The Expansion of Temporary Help Employment in the U.S., 1982-1992: A Test of Alternative Economic Explanations.”

⁶⁶ In 1994, health insurance averaged 6.7 percent of total compensation for private workers, compared to 5.4 percent in 1998. Bureau of Labor Statistics, U. S. Department of Labor, *Employer Costs for Employee Compensation, 1986-97*, Bulletin 2505, August 1998, table 54. . 1998 data are from the July 9, 1998 press release, table 5.

⁶⁷ Because of minimum hours-of-service and contribution requirements, only about 10 percent of temporary employees that are offered insurance actually participate in health plans sponsored by the temporary agency. Of those that participate, half were required to pay the entire cost. Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Compensation Survey: Temporary Help Supply Services, November 1994*, Bulletin 2482, August 1996, p. 4 and table 26.

⁶⁸ “Employment-based Health Insurance,” GAO report 98-184, p. 16. And Edward A. Lenz, “Flexible Employment: Positive Work Strategies for the 21st Century,” *Journal of Labor Research*, Fall 1996, Volume 17, No. 4, pp. 555-567.

⁶⁹ In 1994, administrative support positions averaged a cost of \$1.32 per hour for all forms of employer insurance, whereas health insurance averaged about 90 percent of those costs. Bureau of Labor Statistics, U.S. Department of Labor, *Employer Costs for Employee Compensation, 1986-97*, Bulletin 2505, August 1998, table 58. And “Flexible Employment: Positive Work Strategies for the 21st Century,” table 1.

⁷⁰ Bureau of Labor Statistics, U.S. Department of Labor, *Industry Wage Survey: Help Supply Services*, Bulletin 2430, October 1989.

⁷¹ “Profile of the Temporary Work Force.”

⁷² The price mentioned here is a Producer Price Index, the amount that help supply firms are charging customers for the use of a temporary help worker. BLS began measuring these producer prices in mid-1994.

⁷³ The National Association of Temporary and Staffing Services (NATSS) estimates that the industry spent \$866 million training temporary employees in 1997. That figure is 2½ times the

amount spent in 1995. From NATSS press release, “Temporary Help Revenues Show Big Boost,” September 4, 1998.

⁷⁴ Kelly’s PinPoint CD-ROM offers this training at no cost to employees. “The Greening of the Kelly Girl,” *Staffing Industry Review*, Volume III, No. 4, July/August 1998, pp. 39-44.

⁷⁵ “Profile of the Temporary Workforce.”

⁷⁶ See <http://www.skilmatch.com> for an example.

⁷⁷ While an industrial worker may work for less than \$10 an hour, mistakes can result in damages to costly equipment. “Skills Testing for Light Industrial Candidates: Can You Afford Not to Test?” *Staffing Industry Review*, May/June 1998, Vol. III, No. 3, pp. 88-92.

⁷⁸ “Surveys Find More Employers Relying on Staffing Firms,” *Staffing Industry Review*, September/October 1998, Vol. III, No. 5, pp. 42-48.

⁷⁹ Fred R. Bleakley, “Is Manufacturing Job Loss Overstated?—Use of Temporary Workers Is Distorting U.S. Figures,” *Wall Street Journal*, Eastern Edition, September 20, 1996 p. B5A.

⁸⁰ Frank Washington, “The Underground Workforce,” *Ward’s Auto World*, August 1995, Volume 31, Issue 8, p. 20.

⁸¹ Full text of the act is available online at: <http://thomas.loc.gov/cgi-bin/t2GPO/http://frwebgate.access.gpo.gov>

⁸² Kenneth L. Deavers and Anita U. Hattiangadi, “Welfare to Work: Building a Better Path to Private Employment Opportunities,” *Journal of Labor Research*, Fairfax, VA; Spring 1998, Vol. 19, Issue 2, pp. 205-228.

⁸³ Success stories from “The Welfare to Work Partnership” website <http://www.welfaretowork.org/success/large.html#14>

⁸⁴ “Twelve Local Residents Graduate from Oakland Community College Model Welfare to Work Training Program, Receive Jobs with Kelly Services,” press release from Kelly Services Public Relations Department, Troy, MI. October 13, 1997

⁸⁵ Diana Dillaber Murray, “OCC Gains Acclaim for Welfare Training Program,” *The Oakland Press*, April 29, 1998 p. A-3. And “Eleven Pontiac Residents Graduate from Oakland Community College Welfare to Work Training Program Received Jobs with Kelly Services” press release from Kelly Services Public Relations Department, Troy, MI. October 5, 1998.